

Pasture and Fodder Crop Seeds

FOR AUTUMN PLANTING

INTRODUCTION

★ MAR 30 1931 ★
U.S. Department of Agriculture

More production per acre is the urgent need to-day. Pasture improvement and fodder crop plantings are subjects of vital present interest to every dairyman and fat lamb and baby beef raiser.

In this folder we give a brief descriptive list of Grasses, Clovers, and Fodder Crops suitable for varying degrees of climate and rainfall. A book entitled "Grass Land and Green Crop Farming" is now in course of preparation, and we hope to publish it during the present planting season. If you are interested, we shall be glad to register your name and send you full particulars later.

Very full information will be given in this new book about the laying down and management of pasture, and what crops to grow for fodder, and how to go about the work.

PASTURE GRASSES



WIMMERA RYE GRASS; Left, portion of a paddock on a large Victorian sheep station; Right, under test in our Trial Grounds.

WIMMERA RYE GRASS (*Lolium Rigidum* var. *Strictum*)

An annual species of the Rye Grass family which is exceedingly hardy and drought-resistant and is proving of the utmost value to Australian agriculture. Its value as a pasture plant is considerably enhanced by the fact that it is readily eaten by all classes of stock, and that it adapts itself to varying climatic conditions. As the seed germinates freely and rapidly, Wimmera Rye Grass is easily sown and will reseed each year. This grass has proved satisfactory in the following representative districts:—Grafton, Dorrigo, Kempsey, Taree, Richmond, Camden, Berry, Moss Vale, Cullerewin, Werri Creek, Inverell, Singleton, Bathurst, Orange, Rylstone, Wattleton, Captain's Flat, Cooma, Gundagai, Tumut, Parkes, Milvale, Temora, Milbrulong, Urana, Yering Creek, Illabo, Coonamble, Trangie and Nyngan, Western Districts of Victoria, South Australia and Western Australia.

Being an annual it will provide green feed for seven to eight months in the colder part of the year, after which, although it dries off, it is very nutritious as dry hay, the seeds remaining attached to the dry straw for a long period.

To the sheep and wheat farmer Wimmera Rye Grass is undoubtedly useful, its special value lying in the fact that when harmful grass seeds are plentiful, farmers with areas of Wimmera Rye have clean paddocks into which to turn lambing ewes, and so are able to market lambs free from Spear and Barley grass seeds. In many localities lambs have to be marketed before they are at their best in order to escape grass seed; but the seed of Wimmera Rye has no detrimental features, and does not damage the wool or eyes of sheep.

A special feature of Wimmera Rye is the fact that the plants retain their seed well, the long outer glume holding the seed firmly against the seed stem. Sheep readily eat these dry seed stems, and thus obtain a certain amount of grain with their roughage.

In the hands of a careless farmer, Wimmera Rye Grass may give trouble in wheat areas; if the seed is plentiful in land sown with wheat and grass will check the growth of the crop considerably. When the area is required for cultivation, the grass can be prevented from seeding and eradicated by heavily stocking the paddock with sheep. Any plants which grow on the subsequent fallow can be controlled by feeding them off and working the fallow. A cultivator with broad tines, such as a duck-foot, should be used when the seedlings are just showing through the ground, and at frequent intervals later if required.

Wimmera Rye makes good quality hay and cuts into attractive-looking chaff. Rats and mice do not damage the hay stacks, as the seed is small and does not tempt them to the same extent as oats and wheat do. This feature makes the grass an excellent standby for times of drought. Farmers and graziers who have cut and fed a mixture of Wimmera Rye Grass chaff with either wheaten or oat chaff consider that stock do better on the mixture than if fed wheaten or oat chaff alone. This is accounted for by the fact that the Wimmera Rye would be carrying a large quantity of seed, which would make the mixture more nutritious. The grass retains an excellent colour, even when the seed is well matured, and there is also an absence of discoloured flag on the sample of hay produced.

The seed should be sown in March or April to obtain the best results, but the planting period may be extended to May or even June if it is necessary to wait for favourable conditions. On the poorer classes of soil in the Coastal districts 2 to 3 lbs. per acre are sufficient when mixed with other grass. In wheat districts it should only be sown on areas which are to be given over to grazing for a number of years and 3 lbs. per acre is sufficient, while if 2 lbs. of lucerne are used with it, the quality of the grazing is greatly improved.

Wimmera Rye Grass is also useful for broadcasting on rough country, and will germinate readily if sufficient litter, etc., is on the ground to hold the seed and furnish a cover. It must be remembered that although this grass persists for many years on account of the free seeding habit, it will soon be eaten out if rabbits are plentiful, as they will prevent it from seeding.

For districts with good Winter rainfall a paddock of Wimmera Rye Grass and Subterranean Clover mixed makes an excellent pasture.

It is practically impossible to identify seed of Wimmera Rye Grass in comparison with that of the well-known Italian and Perennial Rye grasses, which are, of course, of much less monetary value and of no use in hot districts, where Wimmera is so successful. Therefore, we strongly urge farmers to buy their supplies from a reputable and reliable seed house and not risk being disappointed with inferior seed.

PERENNIAL RYE GRASS (*Lolium Perenne*)

On those parts of our coastal and tableland country, where a high and regular rainfall may be looked for, this is one of the very best of the introduced grasses, and is a specially good winter grass for the dairy farmer. In moist, rich, clay soils it is practically permanent, but best results are obtained in looser soils by re-sowing at intervals of, say, five to ten years. Sow one and a half to two bushels per acre if used alone. A small proportion should be used in most mixtures for coastal and tableland climates.

Yates' A.Y. Old Pasture Perennial.—This is a very fine perennial variety of the same type and quality as that hitherto offered as Poverty Bay Rye Grass, which was a variety originated by us many years ago. But owing to misrepresentation and substitution in connection with the use of this name we have deemed it advisable to change to the above descriptive name. The seed offered under this brand is saved in a dry climate from true perennial type pastures and therefore is more hardy and long-lasting under Australian conditions than most of the Perennial Rye Grass generally sold, which is saved in cool wet districts. All the seed we offer is carefully tested, heavily re-machined and is of high percentage of germination and purity.

Yates' Re-machined Perennial.—This is the next best long-lasting strain and is superior in this respect and in weight of seed to a great deal of the Rye Grass offered.

ITALIAN RYE GRASS (*Lolium Italicum*)

Italian Rye Grass, being a biennial, comes away very quickly from seed, and when sown in the Autumn will give a large quantity of feed during the Winter and Spring. For this reason it is largely used in districts with good rainfall, such as the N.S.W. Coast and Tablelands, for providing quick grass. In some districts, it is common practice to broadcast the seed through the maize fields about February-March, thus giving good winter feed, while the stock being encouraged to forage amongst the maize roughage, eat a certain amount and tread much into the soil. When the paddock is ploughed up in the Spring it is greatly benefited by the added humus of grass roughage and animal manure. Italian Rye Grass should be included in all grass mixtures for the above type of climate, as it acts as a nurse crop for the slower growing perennial grasses and also helps to exclude weeds, etc., while the other grasses are becoming established. It is one of the most valuable grasses for meadow hay, as it grows quickly and gives a good bulk; its erect habit of growth makes easy cutting, as it tends to lift up the other grasses and clovers. Being a biennial it only lasts two years, but it is free seeding, and if not overstocked at seeding time will persist for some years. Sow 1 to 1½ bus. per acre with Clovers or Grain; if with other grasses, smaller quantities according to circumstances.

Yates' Extra Heavy Re-machined Italian.—This is a first-class strain, thoroughly re-cleaned, and has given excellent results wherever grown.



Dept. of Agric. Photo.
Sheep on the Tablelands Pastured on a mixture of Perennial Rye Grass and Perennial Red Clover.

TERMS OF BUSINESS

Conditions of Sale and Non-Warranty

We believe that all Seeds Bulbs and Roots sold by us are of the description and kind specified by us at the time of sale but owing to the practical impossibility in many cases of being certain of this we give no undertaking that such Seeds Bulbs or Roots will correspond with the description under which they are sold and we make all sales subject to this condition. We further give no warranty expressed or implied as to their growth description quality or productiveness and will not be in any way responsible for the crop. If the purchaser does not accept the goods sold to him on these terms they are at once to be returned to us and any money paid to us will be refunded.

ARTHUR YATES & CO. LTD.

PRICES.—We do not print prices in this Descriptive List, as values fluctuate, and some of our supplies have not been received into store at time of going to press. All charges are set out in our Price List of Farm Seeds current at time of booking order. The Price List now current is sent you herewith, and later issues will be posted promptly on receipt of enquiry.

DELIVERY.—We deliver Seeds on rail or wharf, Sydney, after which Seeds are on customer's account and at his risk. Orders sent by goods train are consigned carriage forward (except to unattended platforms), unless we are otherwise instructed at time of order. Delivery within the Suburban area of Sydney will be made of Farm Seeds, Seed Potatoes, Manures, and Garden Sundries at 1/- per parcel (not exceeding one cwt.).

FORWARDING INSTRUCTIONS.—Please give full and careful directions with each order and we will do our utmost to comply with them. When no instructions are received we send according to our judgment.

TERMS OF PAYMENT.—Our terms are nett cash with order (including allowance for freight if goods are required by coastal steamer or passenger train, or by goods train to unattended platforms).



These three-and-a-half months old Corriedale lambs are as big as their mothers and are fattening on Phalaris bulbosa.

PHALARIS BULBOSA

Owing to harvesting difficulties, ample supplies of the true Phalaris Bulbosa are uncertain and generally difficult to obtain and therefore the cost is necessarily high. As the seed can only be identified by experts, and even then with difficulty, large quantities of that almost useless annual Phalaris Minor are sold by unscrupulous and inexperienced people as the true strain. Purchasers, in their own interests, are urged to be most careful of the source and origin of any seed they procure. Although, of course, we cannot give any guarantee, we, in keeping with our reputation, only stock seed from areas we know.

Each year Phalaris Bulbosa is required in greater quantity as its merits become better known to farmers and graziers. It is considered by many to be superior to Rye Grass and Cocksfoot for our average Tableland conditions. It has a particular value in its ability to withstand hard, cold conditions; in fact, it makes wonderful growth in the winter months. It is a grass we particularly recommend for the Tableland country of N.S.W., and for similar conditions in other States. It is succulent, palatable, and a strong grower. It is deep-rooting, and, when once established, is drought-resistant, and forms a splendid permanent pasture which stands hard grazing. Once thoroughly established, if kept well grazed, it forms a close turf ideal for sheep.

Perhaps nowhere in the State has such interest been taken in pasture improvement as on the Northern Tablelands north of Armidale, and practically the whole district is unanimous concerning the merits of Phalaris Bulbosa as an all-the-year-round pasture grass for their conditions. In grazing trials conducted by the Department of Agriculture at Glen Innes Experimental Farm during four years this wonderful grass has carried two and a quarter sheep per acre continuously and without any spells; and, further, these sheep grew much better and put on more weight than those on the native pasture carrying only one sheep per acre; the latter sheep also had access to stubble and fodder crop residues. We strongly recommend farmers in all temperate and cold districts to sow, at least, small trial plots of this wonderful

grass. It promises excellent results in the grazing lands of our Tasmanian Seed Farm.

This grass also makes good hay if cut as soon as the flower heads are forming. About 5 lbs. per acre is a reasonable sowing, and we suggest that about 2 lbs. per acre of White Clover or ½ lb. to 1 lb. per acre of Subterranean Clover be included either with Phalaris alone or with Phalaris and other grasses in mixture.

COCKSFOOT (*Dactylis Glomerata*)

One of the hardiest of the perennial grasses and one of the most useful. It should be included in all grass mixtures sown in the coastal and tableland districts of New South Wales, and in other parts of the Commonwealth with fair average rainfall evenly distributed throughout the year. Being one of the hardiest of the perennial grasses, it is very useful for sowing on hill country and second quality ridges; it also has a large carrying capacity on good soil. It is inclined to grow tussocky, but judicious grazing will counteract this to a certain extent. Two to eight pounds per acre should be included in grass mixtures, or if sown alone, 15-30 lbs. per acre.

Our seed is heavy and thoroughly machine-cleaned, and will give a good germination and a quick and even catch.

PRAIRIE GRASS (*Bromus Unioides*)

For rich loamy land with a good rainfall, this is a most valuable grass, particularly for the dairyman. It gives a wonderful growth of succulent palatable fodder. It is essential that Prairie Grass be not constantly grazed, as this will kill it out. When a fair growth has been made it should be stocked heavily, and when fed down spell again until a good new growth has been made. By having paddocks well subdivided this system of grazing can be carried out. It will prove for grazing almost as valuable as a crop of oats, with the advantage that it will last for several years without re-sowing. On soils liable to be tramped very hard and which remain in this set condition it will not respond to this treatment so well. To maintain a good covering it should be allowed to seed itself down at the end of each growing season. It is a good plan to use a little in pasture mixtures to give a good body of feed while the Perennial Grasses are establishing themselves. If sown with Lucerne on good land the combination will give wonderful grazing if spelled regularly after being closely grazed. The Prairie Grass gives good results in winter when Lucerne is dormant.

Sow twenty to forty pounds per acre if used alone. When used in mixtures, use one to three pounds per acre.

Yates' Finest Bright Re-machined.—A heavy grade plump seed of a very high percentage of germination and purity.

WHEN TO SOW.

The autumn and early winter months are the best for sowing most of the grasses here described. This gives them an opportunity of establishing their roots during the cooler periods of the year when these grasses show most vigour in their growth. Those few varieties, such as Paspalum, Rhodes, Couch, etc., which are particularly vigorous in the hottest months, may be sown in the late spring.

These remarks apply to all the Clovers and Legumes except those which will not stand frost. These latter should be sown to miss all danger of frosts.

ARTHUR YATES & CO. LTD.,

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184-186-186A SUSSEX ST.,
SYDNEY

YATES' FODDER AND GRASS SEEDS FOR

KIKUYU GRASS (Pennisetum Clandestinum)

We undoubtedly have in Kikuyu a grass of which the quality and capabilities are hardly yet realised by farmers and pastoralists. It is a native of British East Africa and is a perennial grass with a strong system of surface and underground runners which quickly root at the joints and then send up fresh growth. On this account it is very quick spreading where the winters are not too severe, and also remarkably drought resistant.

It should succeed and be profitable to grow in almost any district where the rainfall is 20 inches or over. It is of particular value for poor sandy soils where it is usually difficult to grow anything but weeds, though naturally the richer soils will give correspondingly better results.

It does not seed in Australia, therefore, it can only be distributed by means of cuttings or rootlets, which we can supply at any time from late winter on. Plantings are usually made during the spring, summer and early autumn months. It is recommended to plough the land, opening up furrows six feet apart, and dropping in the rootlets every three feet. At this rate about 2,500 plants will suffice for one acre. Plant in spring.

For prices, see Current Price List.
Approximate cost of Postage and Packing—Per 100: N.S.W., 1/3; Interstate, 2/—.

KENTUCKY BLUE GRASS (Poa Pratensis)

One of the best winter grasses for tableland districts with a good rainfall, yielding a quantity of fine feed in the autumn, winter and early spring. It dies right down in the summer, but soon springs again after rain. It has a creeping habit, resembling Couch, and if once introduced, will become a permanency. The celebrated Blue Grass regions of America, so noted for their horses, take their name from this grass, which forms the bulk of the pastures there. As this grass is very delicate, and easily burnt up while in its younger stage, we recommend that it be sown in the early autumn only.

TALL OAT GRASS (Avena Elatior)

This grass is now becoming very generally used in pasture mixtures and is proving very hardy and most successful. It has a deep rooting system, which protects it against drought, and it quickly spreads when once established. It is a good winter grass and a quick grower. Stock may at first be averse to it, when used to it eat it readily, especially if sown in mixture with other grasses. Customers are recommended to try this grass in land which is rather light in character for other artificial grasses, and we would be pleased to have reports after testing.

It withstands heat of summer and the cold of winter, starts very early in spring and continues to give good grazing over a long period. It has been grown successfully in the Department's Trials in Coastal and Tableland districts. It is best included in mixture with other grasses at the rate of from one to three pounds per acre.

WALLABY GRASSES (Danthonia Species)

One of the hardest of our native grasses. Grows in a wide variety of soils and climates. Especially adapted to the poorer soils unsuited to other grasses, splendid for sheep. Mr. F. Turner, in his work, "Australian Grasses," says of this variety:—"It grows both in the coastal districts and in the arid interior; it is one of the most nutritious grasses of Australia, and, unlike most other species of this genus, it will grow more or less all the year round. Stock of all descriptions are remarkably fond of it. The seed germinates readily after showery weather in the autumn and spring months. On good soil the roots of this grass penetrate to a depth which enables the plant when growing in the arid interior to withstand long spells of dry weather." The seed is very light, and a small quantity will cover a good breadth of land; we would strongly recommend that two or three pounds per acre should be added to all mixtures for any soil or climate.

SHEEP'S BURNET

This fodder plant has proved itself suitable for our dry inland country, where it would be impossible to succeed with the finer grasses. It is one of our best drought-resisting plants, and remains green when every other fodder is burnt up, springing again with light showers that would not have the slightest effect on the grass; it is absolutely permanent, and when once established does not die out. It is a herb, not a grass, grows from 15 to 18 inches high, and has a long tap root, which enables it to stand dry weather and grow when other plants with shallower roots dry off. It grows both in summer and winter, giving the greatest rush of feed in the spring. All animals are fond of it, and thrive well on it, but it is particularly suitable for sheep. It is excellent for sowing on land which is too shallow for Lucerne. Sow ten to twelve pounds per acre. Burnet may, with advantage, be included in Grass Seed Mixtures for poor soils; being a deep rooter it does not rob the surface-rooting grasses, and succeeds where better grasses fail.

PRICES:

Prices are as set out in our Current List at time of booking order. The Price List now current is sent you herewith, and later issues will be posted promptly on receipt of enquiry. They are issued about every three to five weeks.

TALL FESCUE (Festuca Elatior)

A strong growing coarse grass, now considered to be distinctly valuable. While it may not have quite the feeding value of some of the finer grasses, it is extremely hardy, withstands drought well, is adaptable to nearly all classes of soils, and if kept fed down, is quite palatable. It keeps green when other grasses are dried up and thus gives that valuable green pick which helps to keep stock healthy. We would recommend a proportion of this in all mixtures to be sown on any land except low, moist flats. In the wet districts of New Zealand, Tall Fescue takes Ergot very badly which causes sickness and abortion in cattle. This trouble has not occurred in the drier climate of this country, but we would suggest that it should not be sown anywhere near swamps.

CHEWING FESCUE (Festuca Rubra Var.)

This grass has been grown in New Zealand with success on poor, light, as well as heavier lands; it has formed a good sward where no other grass would succeed. It is permanent, and throws up a useful amount of feed in the early spring, particularly good for sheep. We would recommend that a little of this grass be included in all mixtures for permanent pasture in coastal or tableland districts, or, if planted alone, allow fifteen pounds per acre.

MEADOW FESCUE (Festuca Pratensis)

An excellent perennial grass for districts with fairly regular rainfall, and much relished by all stock. This grass has given good results under observation in many districts, and should be included in all grass mixtures for districts with good rainfall where long dry spells are unusual.

FESCUE (Fine Leaved) (Festuca Ovina Tenuifolia)

This grass is not recommended as a pasture grass, but is excellent for lawn purposes, giving a very fine even sward.

RHODES GRASS (Chloris Gayana)

A very strong growing grass, which, rooting at every joint, soon covers a large area. Excellent for moist situations and hot climates, but succeeds well in a large range of situations and climates, except where heavy frosts are experienced. It is quick germinating after rain, but needs soft moist weather for an ideal "strike." It makes growth rapidly and is very palatable to all stock. When well established it is remarkably drought resistant. It is very largely used for surface sowing after clearing and burning off scrub in the coastal areas, and for this purpose there is nothing better. In some of the inland districts of Queensland, Rhodes Grass is proving of the utmost value, and has also been of value in some parts of the Western slopes of N.S.W., especially in areas where summer rains predominate, not only in mixed pastures, but as a special grazing crop when planted with Lucerne, say four pounds of Rhodes and two or three pounds of Lucerne per acre. When sown alone six to ten pounds per acre is sufficient, if good quality seed is used. Sow in spring or in early autumn; it requires warm moist weather to germinate successfully. In cold districts sowing should be confined to the spring.



A much valued paddock of Rhodes Grass on the Bungarribe Manor property in Blacktown District, near Sydney.

PASPALUM DILATATUM (Yates' Prime "Hand Shaken")

Does well for a few years planted in conjunction with Rhodes Grass in coastal districts after a burn. The seed should be sown during spring, summer or early autumn, say from August to April. Succeeds best where moist warm conditions prevail, but will prove a very profitable crop even where a moderate rainfall is experienced, and under these latter conditions it is not so likely to become rank and difficult to deal with. Once introduced into swampy land Paspalum soon covers it with a thick mat and gives good grazing where the land would otherwise be useless. It is an excellent practice to sow a few pounds of Perennial Red Clover and White Clover with the Paspalum, as these provide feed when the latter is more or less dormant. Sow ten to twelve pounds of Paspalum per acre. Special quotes for large quantities.

PASPALUM COMPRESSUM

(Also known as Dorrington Grass or Carpet Grass)
A dwarf compact growing variety of Paspalum, proving of great value for poor sandy ridge stretches of country in districts where Paspalum Dilatum does well; makes well-matted roots. Sow five pounds per acre.

COUCH GRASS (Cynodon Dactylon)

Stands heat and drought well and is especially suited for dry and sandy spots on the coast, and mild districts of good rainfall where other grasses will not flourish. It is also of great value for binding loose soil, sand banks, etc. It should not be planted near cultivation paddocks, as it is difficult to eradicate. Unless the ground is warm and moist, the germination is often unsatisfactory; therefore, sow in warm weather after good rains, using ten pounds per acre. In warm climates this grass is very largely used for lawns, making a close, fine turf, and withstanding considerable heat and drought. For this purpose one to two pounds of seed are sufficient for about ten yards square. Sow in spring and summer.

ELEPHANT GRASS (Pennisetum Purpureum)

Although not strictly speaking a pasture grass, this has proved to be a valuable acquisition and a fodder plant of considerable value. It is a vigorous growing plant, attaining a height of 12 to 15 feet. It stands cutting well, tests made by the Department of Agriculture showing a return of 50 tons and more of green fodder per acre per year, and also that this grass is of good feeding quality and that stock relish it, but it must not be allowed to get too high and coarse. It may be either grazed or cut, and shows a very satisfactory food value by analysis. Milk yield and tests are well maintained. Elephant Grass is a summer grass and gives good results, even if only on poor land. The cuttings should be planted three feet apart in and between the rows. Plant in spring.

For prices, see Current Price List. Approximate cost of postage and packing on cuttings—Per 100: N. S. W., 1/6; Interstate, 2/6.

GRASSES FOR SWAMPY AREAS WATER MEADOW GRASS (Poa Aquatica)

This is used rather extensively on marshy land, and swamps in Gippsland. The plant is fairly nutritious, but rather coarse. We can usually supply root stocks.

POA (Glyceria) FLUITANS (Manna Grass or Floating Sweet Grass)

Finer and shorter than P. Aquatica; does specially well in association with Lotus major.

PASPALUM DISTICHUM (Water Couch)
Most useful for salty marshes.
Customers should give us a week or 10 days' notice to enable us to arrange supplies of above.

AGROSTIS SPECIES

These grasses are used fairly largely for lawns, golf greens, etc., and are commonly known as Bent Grasses. Their value for pasturage is low, except in cold, harsh situations. We stock—A. tenuis (Brown Top or Rhode Island Bent); A. vulgaris (Red Top).

TEFF GRASS (Eragrostis Abyssinica)

An annual summer growing grass in very great favour in South Africa, especially where summer rains are prevalent. It must be re-sown every year like Sudan Grass, but we regard the latter as much more suited to Australian conditions.

OTHER GRASSES

We also stock the following, which, however, are of minor importance under our conditions, except for special situations or purposes:—Timothy, Poa trivialis, Poa nemoralis, Meadow Fox Tail, Crested Dog's Tail, Yorkshire Fog, Rib Grass or Lamb's Tongue (not a member of the grass family).

CLOVERS

Also TREFOILS, MEDICS, and LOTUS

Landholders, especially those in areas where a fair rainfall is experienced, are realising more and more the great value of the Clovers, as **Soil-renovators**, as well as fodder crops of the highest quality, either alone, in pasture, or sown with other green stuff or hay crops. They also help to provide the other plants with available nitrogen, thus stimulating the general growth.

For renovating worn-out land, and for keeping valuable farming land in proper condition, nothing will do more good than the Clover family (or, if preferred, other Legumes, such as Field Peas, Field Lupins and Soy Beans, and in warm climates Cow Peas). When ploughed in they add a most valuable manure in the form of nitrogen, which is gathered from the atmosphere. When the crop is ploughed in the nitrogen is made available, while the foliage, stems and roots form necessary "humus," which gives "life" to the land. For the efficient growth of all legumes an ample supply of phosphates is essential. Soils deficient in this element should be treated with "super." or other phosphatic manure.

The addition of one or other of the Clovers, when laying down pastures or sowing greenstuff or hay crops, will provide a much better balanced ration of which stock are very fond; and when the crop is done the Clover will often give a good picking for a considerable period, afterwards being ploughed in for **green manure**.

Clovers succeed best in good "sweet" land and usually respond well to superphosphate. Sow 12 lbs. to 15 lbs. per acre alone, or, if with pasture grasses, 2 lbs. to 3 lbs. per acre. Generally speaking, Clovers should be sown in the autumn, but in good seasons successful results can be obtained from spring sowing in coastal and tableland districts.

YATES' "A.Y." SUPERFINE WHITE CLOVER (Trifolium Repens)

This is used perhaps more than any other for sowing down with Pasture Grasses. It spreads quickly, especially in moist situations. Widely used on the North Coast of N.S.W. in Paspalum and Rhodes Grass Pastures, giving a splendid pick during the winter when these two grasses are more or less dormant. Succeeds in a wide variety of soils and climates.

Though in dry years it will thin out and perhaps almost disappear, the first good spring will bring an enormous growth, as the seeds remain in the ground until the necessary moisture occurs for its germination. We do not recommend this clover for the comparatively drier parts of the State, but it is undoubtedly one of the hardest clovers and will persist under quite hard conditions.

YATES' SUPERFINE PERENNIAL RED CLOVER OR COW GRASS (Trifolium Pratense Perenne)

Increased interest is now being taken in this Clover as it is now found that it will do well in almost any district of good rainfall. It is a vigorous grower and is splendid for milk production. When sown with oats which are used for grazing it comes away strongly in the spring and keeps up the flow of milk as the oats gradually ripen off. It is not as perennial as White Clover, but will make an excellent pasture for two or three years, and for some time will give a much larger yield than White Clover; especially is this so in the colder districts where it is giving excellent results. It is recommended that this clover be used for practically all pasture mixtures for coast and tableland conditions. From one to two pounds per acre should be included in grass mixtures. When sown with oats use two to three pounds per acre. Planting alone use ten pounds per acre. There is no better temporary pasture, giving quick results, than Italian Rye Grass and Red Clover.

SUBTERRANEAN CLOVER (Trifolium subterraneum)

An annual Clover which makes its growth in the cooler weather starting off with the first autumn rains, and has a dense spreading habit and is very free seeding. A proportion of the seeds are deposited under the soil, hence the name Subterranean. The seeds are contained in a soft case which does not hang in the wool, and, being large, are readily licked up by the stock in the dry weather when the ground is bare, just as they do the seed of the ordinary Burr Trefoil.

The plant can readily be identified by its bluish-green hairy appearance and most of the leaves have a brown blotch at the base.

Subterranean Clover seem to be very adaptable to all classes of soil and a wide range of climates. It will do in most districts where Burr Trefoil makes a growth every year, but it does not seem to stand quite as much heat.

It is particularly adaptable where a good autumn rainfall is assured, as it then starts early in the autumn and continues right through the winter to the late spring. It makes its maximum growth in the early spring when it forms a dense carpet over the ground, which dries off and cures as a natural hay, giving excellent feed. The hay contains a high proportion of seeds, so is highly nutritious. Owing to its free seeding habit, Subterranean Clover spreads rapidly and in suitable districts soon becomes one of the main features of the pasture. It can be easily controlled, however, in arable land by cultivation, and, being a legume, it naturally enriches the soil.

As both Subterranean Clover and Wimmera Rye Grass are free seeding annuals, they are the easiest and probably the most satisfactory combinations for the sowing of broad acres at the present time. If they are planted after the first autumn rains and fed off only lightly for the first year, special care being given them at seeding time, a much improved permanent pasture should be assured in all districts with a good autumn and spring rainfall.

The feeding value of Subterranean Clover seems to be very high, and all classes of stock do exceptionally well on it. Owing to the way it grows in a dense mass it is excellent for sowing in land covered with undesirable weeds or top growth, as it spreads rapidly and tends to choke them out.

On properly prepared land Subterranean Clover should be sown at the rate of 2-3 lbs. per acre, thus giving a good growth immediately; however, it can be cheaply introduced on grass land by scattering about 1 lb. per acre and then, if possible, scratching the surface soil with a harrow, but sowing at this rate it may take two or three years to become properly established. On large holdings it is a good practice to carry a small quantity of this clover on inspection trips and to scatter a little seed in all the spots where the soil is inclined to be a little loose, such as old stump holes and rabbit warrens or creek washes.

Most of the country in Australia which enjoys a regular winter rainfall is deficient in Superphosphate. Subterranean Clover is particularly partial to this manure and wherever possible it should be spread over the clover—it helps it to start early in the autumn and increases the growth of feed right through the growing period.

In general, it can be taken that Subterranean Clover can be planted in all districts south of the main Western line of New South Wales and in those districts north of this where good autumn and spring growth is made. It has practically no disadvantages, with the possible exception, that, being such a strong grower, it may tend to choke out other grasses and thus make the pasture unbalanced. It is an excellent practice to sow it on the poorer hills where it grows quickly and helps to protect the land from washing.



Showing the dense growth of Subterranean Clover when grown under favourable conditions.

ENGLISH TREFOIL (Medicago Lupulina)

A perennial which does best in cold districts and deep soils. It is recommended for these localities when other clovers will not thrive. It provides good bottom herbage through the winter and lasts well in pastures. In recent trials in the County of Cumberland this trefoil has shown very fair drought and heat resisting qualities. It has grown well right through the winter and spring and in mid-summer, after a particularly dry period, it was still green and succulent.

While it does not grow tall enough for cutting, the thick bottom growth of this legume makes it a valuable pasture plant. It has found great favour in the Northern high lands, standing conditions there unfavourable to other clovers.

We believe this trefoil has great adaptability, and we recommend farmers in the warmer districts—where it has not yet been grown to any extent—giving it a trial.

BERSEEM (or Egyptian Clover) (Trifolium Alexandrinum)

An annual Clover suited to the more temperate districts, which must be sown in early autumn, as it makes its growth during the autumn, winter and early spring months. Sown in early autumn in a favourable locality, it will give two and even three cuttings of valuable Lucerne-like green-stuff during the winter and early spring. It can also be sown in the autumn with oats, and after being grazed for a time it can be cut in the spring with the oats for hay. It should be tried in all temperate districts as winter fodder and spring hay. Sow 8 to 12 lbs. per acre.

BOKHARA CLOVER (or White Sweet Clover) (Melilotus Alba)

A biennial extremely useful for renovating, green manuring, and preparing land for the introduction of Lucerne. The plant makes very big root growth, and when it dies out after the second year it rots down very quickly, leaving the soil well opened up.

Bokhara can be grazed profitably by all classes of stock, the fodder value, by analysis, being extremely high. There is practically no danger of bloat with this Clover, but it is likely to taint milk. It is also an excellent honey plant.

If used as a rotation crop it can be ploughed in either the first or second year according to circumstances. Seeding does not take place until the second year, and so long as this is prevented there is no danger of the plant getting out of control.

This plant should not be grown in wheat paddocks, as the seed will taint flour. Sow 8 lbs. to 10 lbs. per acre broadcast, or 5 lbs. in drills.



Variety test of Clovers on our Trial Ground.

GREEN FEED ALL THE YEAR ROUND

BURR or "NATIVE" TREFOIL (Medicago Denticulata)

This is an introduced member of the Clover family, but has become so widespread that it has earned the title of "Native." It is now one of the commonest plants in N.S.W., and furnishes a tremendous amount of feed. It grows with the first good autumn rains, giving a heavy yield of lush green fodder throughout the winter and spring. With the approach of summer the plant ripens off and the seed, falling on the ground, then forms a most valuable and highly concentrated food. This the sheep will lick up from the ground and thrive on. Country that grows this Trefoil is essentially fattening country. The burrs are a great disadvantage in purely wool growing country.

BURRLESS or BUTTON TREFOIL (Medicago Orbicularis)

This is a variety of Trefoil Clover which has attracted attention in Tamworth and other Northern districts. It is very similar in its growth and appearance to our Native Trefoil or Burr Clover, but the seed is not enclosed in a burr; this is manifestly a great advantage to wool growers. However, the plant is not as hardy or as prolific as the well-known Burr Clover. It is an annual, but seeds itself so profusely that it comes up every spring, and is permanent when once introduced.

CLUSTER CLOVER (Trifolium Glomeratum)

An annual very much like Burr Clover and thrives in the same conditions and soils. While it hardly gives as much feed as the latter, it has no injurious burr and therefore is excellent for sheep country. It is easily introduced by scattering seed over the land when it is not too hard.

ALSYKE (Trifolium Hybridum)

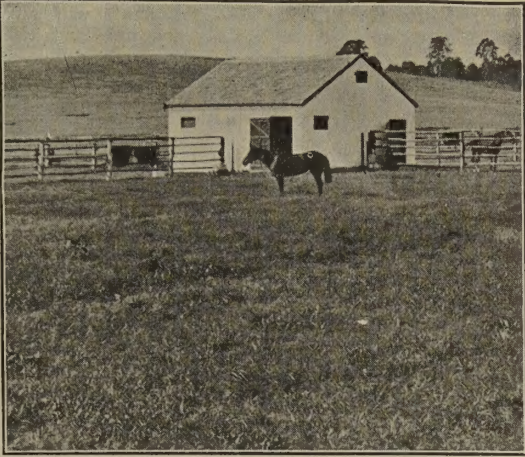
Combines to some extent the qualities of the Red Clover and White Clover. It produces more forage than White Clover, but will not stand as much heat; but, however, is rather better on wet soils. It makes most of its growth during the winter and spring and stands frost better than any other.

STRAWBERRY CLOVER (Trifolium Fragiferum)

An excellent variety for low, wet, swampy land subject to floods or inundations through the backing up of tide water. This plant has a trailing habit, and thrives where no other Clovers and very few grasses will grow; in our opinion, it should be associated with Water Couch. If one pound or so per acre is sown in suitable situations it will very soon spread. It is very largely grown in portions of Gippsland, where the land is swampy, and is found to be very fattening. Cattle do particularly well on it.

TRIFOLIUM CERNUUM (Drooping Flowered or Gingen Clover)

This is an annual clover which seeds itself down, so that once introduced it is permanent. It is an excellent clover, making heavy growth in the autumn and winter months, and is particularly suitable for moist or even wet soils. It will withstand a large amount of inundation during the winter months. In drier soils it is not so successful.



Prairie Grass in conjunction with Perennial Rye Grass, Subterranean Clover and Red Clover on Bungarribee Manor Horse Stud Farm.

TRIFOLIUM INCARNATUM (or Crimson Clover)

This is an annual clover, useful as a rotation crop or for hay. It is a very quick grower and a great soil renovator. The root system is particularly efficient in producing nitrogen bacteria and therefore it should be useful in certain conditions as a soil improver in orchards. Stock do not eat it readily when green, owing to its hairiness. A splendid variety for clover hay in cold districts. Sow 12 lbs. per acre in autumn.

LOTUS (Varieties)

LOTUS CORNICULATUS (Birdsfoot Trefoil)—A perennial which will probably do well in coastal and tableland districts. It is said to withstand dry weather better than Red Clover and needs less lime in the soil. It is used both in pastures and as a fodder crop. We have recently tested this variety out in the County of Cumberland and we find it to be a drought resistant hardy pasture plant; perennial in habit, it keeps green throughout summer and winter.

We specially urge Coastal farmers to try this in their pastures. Sow in autumn.

(A customer in North Queensland, where clovers are hard to grow, reports great success with this Lotus.)

LOTUS MAJOR (Greater Birdsfoot Trefoil)—A perennial like the above, but appears to do best in damp soils. Seed should be sown in early spring and lightly covered with a chain or brush harrow. Used largely in N.Z. for breaking-in newly drained swamps.

LOTUS ANGUSTISSIMUS (Narrow-leaved Lotus)—A hardy clover which does well in rough country and should be very suitable for sowing on burns. In trials at Glen Innes it proved very good, giving fine summer feed.

LUCERNE

Some Notes on its Treatment as a Grazing Crop, with special reference to Wheat Lands on the Slopes and in the Riverina.

The earliest records available of lucerne and its use as feed for stock show that it was first found in the south-east of Central Asia, and from this region it was taken to Greece by the Persians and grown there as a food for their horses and cattle when they invaded that country about 490 B.C. As lucerne is a native of Central Asia there should be no doubt as to its ability to withstand dry conditions.

NO NECESSITY FOR HEAVY SOWINGS

Two of the reasons advanced by some pastoralists for not sowing large areas of lucerne are (1) that seed is expensive, and (2) that it is necessary to sow 10 to 12 lbs. of seed per acre. This is not so. Sowings of as little as 2 lbs. per acre have been successful, and indeed are recommended for districts of only medium average rainfall; even on good average wheat country only 6-8 lbs. per acre is necessary.

SOWING THE SEED

Lucerne seed, being small, should be only lightly covered with soil (about $\frac{1}{2}$ in.); if buried more than one inch the percentage of germination is noticeably reduced. When using the light sowings recommended in the previous paragraph the best quality re-machined seed only should be used and the land should be well prepared, fallowed, and after sowing, well firmed, so that the seed will make good contact with the soil.

The usual method adopted in sowing seed on large areas is to use the wheat drill or the "combine," while on small areas a hand broadcasting machine is operated or the seed is scattered by hand.

If a grass-seed box is attached to the drill, the lucerne seed should be sown through that attachment, allowing the seed to scatter in front of the hoes or discs of the drill; a light harrow, wire-netting, chain, or bushes attached to the footboard of the drill will effectively cover the seed.

Where the seed is mixed with superphosphate (56 lbs. of the fertiliser should be used per acre) and sown through the fertiliser box of the drill or "combine," the distributing tubes should be pulled out of the "feet" of the machine,

allowing the mixture of seed and fertiliser to fall on the surface of the ground. If necessary, a harrow should be used or other means adopted of covering the seed.

Where this method is being used, do not mix the seed more than a few hours before sowing, otherwise the germination may be detrimentally affected.

In cases where lucerne seed is being sown with the last crop of wheat or oats to be grown, and a grass-seed box is not available, the lucerne should be mixed with superphosphate and sown through the fertiliser box. A very light sowing should be made of wheat or oats as the cereal tends to crowd out the lucerne. As shallow a sowing as possible should be aimed at, as deep planting is detrimental to lucerne seed. In some cases two plantings are made, the wheat being sown first at the usual depth for such seed and the lucerne planted shallower at the second drilling. Where the wheels of the drill or "combine" do not sink too deeply into the prepared land, the distributing tubes can be left in the "feet" of the hoes or discs, provided the latter just penetrate the soil; put the machine into gear by setting the gear lever in the first notch, or allow it to run free between the "in" and "out" of gear notches. This will give just sufficient penetration of the soil to satisfactorily cover the seed.

When seed and superphosphate mixed are being sown, only a small quantity of the mixture should be put in the fertiliser box at a time, as this ensures a more even distribution of the seed over the area to be planted.

On friable self-mulching soil, lucerne is being established satisfactorily for pasture purposes by broadcasting the seed per medium of top-dressing machines, harrows following to give effective covering, or sheep may be used to lightly tramp the seed into the ground. In some cases the land is given a shallow cultivation prior to seeding.

Autumn sowing is generally to be recommended, as the plants have a chance of becoming well established in the cool seasons, but there are many factors which have to be taken into account, such as period of greatest weed growth, severity of winter frosts, etc., and from our records we know that just as much lucerne seed is sown in the Spring as in the Autumn.



Lucerne is the best insurance against drought.

FEEDING-OFF LUCERNE STANDS

After the plants have made 9 to 10 inches of top growth, the area can be fed-off. Such feeding-off should be done by stocking at the rate of eight to ten sheep per acre, in order to eat the growth off rapidly. Remove the animals as soon as the feed becomes somewhat short, otherwise they are likely to graze the lucerne too harshly and injure the young crowns of the plants.

Hoven or bloat is likely to occur in sheep and cattle at any time if the animals are hungry when first turned out to the paddock; the trouble is accentuated if the lucerne is wet with rain or dew. Once sheep become accustomed to feeding regularly on lucerne, however, very few deaths occur. A mixed pasture of grasses and lucerne minimises the danger to a considerable extent as a variety of feed is available. Having grass paddocks, to which the sheep have access, adjacent to the lucerne areas will result in a better balance of feed than where only lucerne is available. The practice considerably reduces the danger of hoven, and also results in the life of the lucerne plants being extended, as the stock are not feeding on them continuously. It is the young, succulent growths of lucerne which cause most losses from hoven, and whenever possible to do so allow the feed to become more mature before grazing it off.

In most of the grazing districts where lucerne is available, we find, in average seasons, a plentiful growth of barley grass (*Hordeum murinum*) during winter and spring months, and some summer grasses during the remainder of the year. Such growth provides a mixture of pasturage and a well-balanced feed, and tends to reduce danger of hoven.

Tests have shown that lucerne should be allowed to reach full bloom before cutting or feeding-off at least once or twice a year, as at this stage the production of organic food in the root is generally accelerated, and it is stored in sufficient quantities to enable the plant to make a new strong top growth while the root growth is also quickened. It has been definitely shown that continual feeding or cutting of the plants before the growth is mature, gradually lessens their productivity.

LEGUMINOUS CROPS — Autumn Planting

In the agriculture of the world the Leguminaceae (Legume family) rank next in importance probably to the Gramineae (Grass family). For providing a fodder of the highest nutritive quality, for renovating worn-out land, and for keeping valuable farming land in proper condition, nothing is more useful than the various species of Legumes which are now in commercial use.



Field Peas are an excellent winter fodder for all classes of stock.

FIELD PEAS

This crop is an excellent fodder for sheep, pigs, and other stock, but we think its main value is when grown as a combined "legume-cereal crop," particularly with oats or wheat. If sown early with oats they can be grazed off once or twice during the winter and then let go dry for hay. The addition of this crop to the green feed and hay makes a much better balanced ration and it is very palatable to stock. Loams and clay loams of an open nature are the most suitable.

If sown alone they may be grown to maturity for "topping off" and when cut fed to pigs, or they may be cut green just after flowering, for cattle or pig feed. This crop is classed among the best of the soil improvers. Even if only the roots are ploughed in the soil is greatly enriched.

A favoured method of growing them on coastal dairy farms is to sow the field peas between the rows of late maize just prior to the last cultivation. When the maize ripens the drying leaves allow ingress of light and air and rapid growth is made. After feeding off, the roots and top growth, which has been trodden down, are ploughed and help to maintain the soil fertility for the following maize crop.

Field peas, though not so hardy as Tares or Vetches, are earlier maturing, usually cheaper in price, and one grower reports that when grown with a cereal it will stand the trampling of grazing cattle better than will Tares under similar conditions. Field peas can be sown in the autumn or spring, but in mild districts we prefer autumn sowing.

Sown alone 1½ to 2 bushels per acre broadcast, or say 30 lbs. in drills 2 feet apart. Sown with cereal crop, try ½ bushel Field Peas with 1½ bushel oats or wheat per acre.

Care should be taken to sow the seed deeply enough (2-3 inches in normal soils).

We usually stock the Grey, Blue, and Dun varieties of Field Pea, the Grey and the Dun being perhaps the most popular. In addition we now have supplies of the favourite Black-eyed Susan variety, which is in great demand in N.S.W.

TARES or VETCHES

These are important members of the legume family, and are largely grown both for fodder and as a winter green manure. In both cases it is preferable to sow in conjunction with a cereal crop, though they may be used alone as green manure. When used for feed the combination of legume and cereal gives a well balanced ration, and the upright growth of the cereal supports the Tare, which is a climbing or trailing plant. Cows milk well on Tares, and they are an excellent fattening crop for pigs.

In some of the North Coast districts this crop, either alone or in combination with Rye, Oats, or Barley, is sown on the maize flats, fed off during the winter, and in the spring the residue ploughed in for green manure. Not only does this provide excellent winter fodder, but it also maintains the fertility of the flats, thus giving better yields in the succeeding crop. In order to encourage a quick and heavy growth, we advise the application of superphosphate with this crop.

Tares succeed in a wide variety of soil and districts, so long as there is a good winter rainfall. Seed should be sown in early autumn from February onwards. We would suggest a sowing of from ½ bus. to 1 bus. Tares with a

CARE OF ESTABLISHED FIELDS

It is advisable to have reasonably small paddocks, and put large numbers of sheep on at a time to eat the area off in at least ten or twelve days. If the paddocks are large, temporary fences that can be erected rapidly and moved easily should be utilised for subdivision purposes. Water can be supplied by means of water carts and troughing. Where sheep are continuously grazing on a paddock of lucerne for lengthy periods, the young shoots are severely eaten back, the crowns become damaged, and the vitality of the plant is considerably impaired. In paddocks that are grazed the surface soil sets hard with tramping, and cultivation should be carried out at least twice a year.

Top-dressings of 1-1½ cwt superphosphate per acre should be made at least every second year. The fertiliser should be applied in July or August, working it in with a cultivator or heavy tripod grass harrow.

CEREALS FOR WINTER FEED ON THIN LUCERNE STANDS

Where lucerne stands have been utilised for grazing for a number of years and are thinning out, an autumn sowing of 20 lbs. of wheat or 30 lbs. oats per acre, on easily worked land, will provide a considerable quantity of winter grazing during the cereal crop's period of growth of five or six months.

CARRYING CAPACITY

In a test at Cowra, lucerne on average wheat country (not river flats) carried at an average rate of 3½ sheep per acre for a twelve month's period, during which just under 20 inches of rain were recorded; only 6 inches falling during the first six months of the test.

In a test at Trangie, lucerne carried an average of nearly 2½ sheep per acre during a period of 2 years. The total rainfall was 32½ inches for the two years, but only 16½ inches were recorded in the first eighteen months of the test.

The above instances show conclusively that from a grazing standpoint the resistance of lucerne to dry conditions is one of its outstanding qualities.

Seed Supply.—For over thirty years we have been handling lucerne seed in large quantities, and it follows naturally that we have gained a wealth of experience.

YATES' PATENT LUCERNE In sealed bags, is re-machined and tested seed of extra prime quality of a superior type of N.S.W. grown lucerne, which is saved on selected farms in those districts in which, owing to special natural conditions, there has been evolved a long-standing drought-resisting strain, which has proved itself for Australian conditions. Supplied in 25 lbs. and 50 lbs. net SEALED bags.

bushel or half-bushel of Oats, Rye, or Barley (or a mixture of the three). The ratio will vary according as the main crop is intended to be the cereal or the legume. The Department of Agriculture recommends 30 lbs. Tares with a bushel of grain. The seed can be mixed and broadcast or it can be drilled in. If sown alone, up to 2 bushels per acre is ample. Golden Tares is the variety most used and is the one which we usually stock, but this year supplies are practically unobtainable and we recommend the following:—

TWO NEW VETCHES

These new vetches have shown great promise in the trials conducted by the Department of Agriculture, and have given greater yields than any of the old varieties. We suggest that trials of these be made to ascertain their value under customers' local conditions. As the seed is much smaller, sow about half the quantity used for ordinary Golden Tares.

VICIA DASycARPA (Woolly Pod Vetch) This is similar to Hairy Vetch, but the fragrant flowers are purple, and it is 2-3 weeks earlier, taking about 5 months to mature. It makes better growth in cool weather than do other varieties and, as it has a procumbent habit, is useful for choking out weeds.

VICIA ATROPURPUREA (Purple Vetch) In many ways this is similar to above, but in tests has given a slightly greater bulk of feed. It should prove satisfactory as a green manure crop in citrus orchards, and in tests has done well in coastal regions as well as on inland irrigation areas.

NEW ZEALAND BLUE LUPINS

Annuals which for green manuring provide one of the best crops for ploughing in, especially in our cooler districts. They are not suitable for green-feed for animals, and under certain circumstances are liable to be poisonous. When practicable we recommend autumn sowing, but they will succeed if sown in early spring. Lupins grow very rapidly and produce a large quantity of top. Sow at the rate of 2 bushels per acre. For small trials 3 lbs. will sow an area of 100 square yards (10 yds. x 10 yds.).

KUDZU VINE

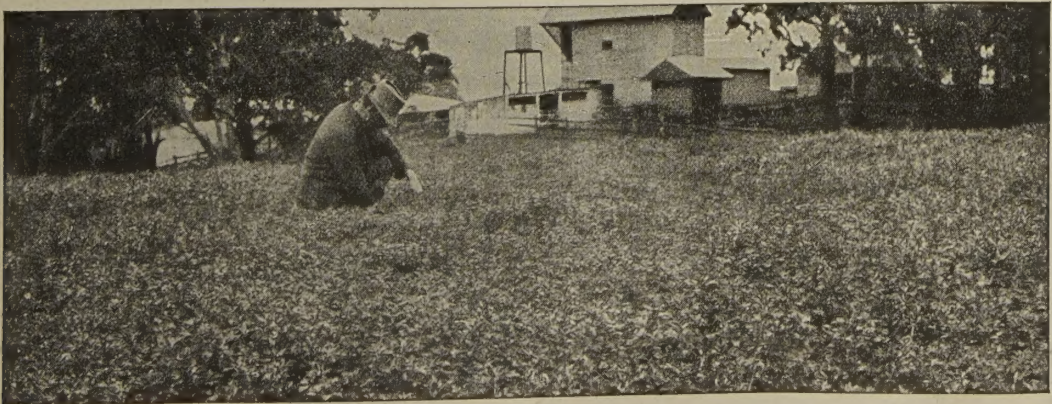
(*Pueraria Thunbergiana*) A perennial legume only adapted for poor soils near the sub-tropical coast. We can only supply in packets; but as the plants grow quickly and send out long runners which root at every joint, they can then be severed and transplanted over the required area. Packets, 1/-.

HORSE or TICK BEANS

A variety of Broad Bean, the seeds of which form excellent feed for horses, but their main usefulness is as a winter green-manuring crop, as they grow well on cold wet soils. Sow about 2 bushels per acre.

WEST AUSTRALIAN BLUE LUPINS

Reports of the value of these lupins in W.A. have caused an enquiry for them in N.S.W. This is due to a misunderstanding of their limited use. In W.A. they are only used on poor sandy country with a 14-15 inch rainfall, and which only grows rough scrubby feed. It is not considered that they would be of any use in N.S.W., as where grass will grow it is much better.



Lucerne is the King of Fodder Crops for the Sheep man as well as for the Farmer and Dairyman.



The New Vetch—Vicia dasycarpa in full growth.

STRONGER CROPS; YATES' RE-MACHINED AND TESTED SEEDS

YATES' RE-MACHINED SEED GRAIN

IT PAYS TO SOW YATES' RE-MACHINED SAMPLES.

Many farmers do not yet recognise the importance of procuring the primest and purest samples of grain when sowing for hay, grain or green fodder, and for the sake of a few pence per bushel thousands of bags of the most inferior seed oats are annually sent away to our dairy farmers to grow fodder. The infesting of the land with weed seeds, when by paying a little extra price seed which has been thoroughly re-dressed is obtainable is surely a poor policy. See also illustration at foot of this page showing the difference between cleaned and uncleaned samples.

The sowing of Re-cleaned Farm Seeds means CLEANER CROPS, Surer CROPS, HEAVIER CROPS, and what is perhaps of the most importance—CLEAN LAND.



Sunrise Oats—A prolific grower.

Florence Wheat under Test.

A Stud Plot for Seed Sunrise Oats.

SEED OATS

Prime Heavy Re-cleaned Samples.

The importance of sowing only re-cleaned and re-graded Seed Oats for green fodder as well as for grain is now beyond the experimental stage. The high cost of labour and high land values make it more than ever necessary to get the most out of the cultivated land. It is better to have ten acres of a really good crop than twice the area giving only an indifferent yield.

Algerian Oats are grown largely for feeding dairy cows and with successive plantings will provide feed for eight months of the year. To get the best results the cultivation land should be divided into three or four small paddocks; the crop which has been trodden down soon recovers after a few weeks' spell, but continual grazing is wasteful, not good for the crop or the cows. We recommend that a dressing of one cwt. of Bone-dust or Superphosphate be used, also that a proportion of Field Peas, Vetches, Red Clover or Berseem Clover, according to climate and situation, be planted with the Oats. This will give a balanced ration and so increase the milk flow; it will also help to maintain the fertility of the land, and give a good stubble feeding during the following autumn.

The **Algerian** variety is of finer growth, stands up to trampling, and is of strong root growth, which prevents it from being easily pulled out. It stands the greatest amount of feeding off, but if the earlier varieties, such as **Sunrise** or **Mulga** are used, good green feed will be had much earlier. On account of their quick-growing capacity, these varieties are also very useful for planting late in the season. By making two sowings of these early varieties about two months apart, continuous grazing will be had from early autumn right into the late spring.

If shut up fairly early in the spring good hay crops can be gathered in addition to the winter grazing.

Yates' Extra Prime A.Y. Re-machined Samples are the very pick of the lines offering, thoroughly re-cleaned and graded by our special machinery. Every grain should produce a strong, well-nourished plant under proper conditions.

LIST OF VARIETIES

Algerian—See foregoing, the variety most used for all round purposes, stools well, is very hardy and a great drought resister. A wonderful grazing oat.

Sunrise—An early oat of medium coarse straw, very suitable for coastal districts; moderate stooler. It should be sown more thickly than Algerian. An excellent oat for silage or green fodder, giving a great bulk of feed; it is not so good for hay as Mulga, as the stems are not so fine. Stands feeding off well, and is much less liable to rust than Algerian.

Mulga—A very early maturing selection from Sunrise, and better for grazing and fodder in the warmer inland districts. It also does well on the coast and tablelands. It is particularly palatable to stock, is excellent for grazing, as it stands feeding off well; can be sown either early or late. In the former case a lighter sowing is made. It is an excellent oat for grain and produces a fine plump sample in warm districts where Algerian will not do well. For grain purposes it is somewhat weak in the straw, so that it should be sown late, when it does not grow too rank and the straw will be found quite strong enough, or, if planted early, is kept well fed off in the early part of the season.

Guyra—A very early dual purpose oat with medium fine purplish straw. Is excellent for chaff, and the produce weighs well in the bag; it seems specially suitable for cooler districts where it gives a fine yield of plump short dark brown grains. It is about as susceptible as Algerian to rust, it stands feeding off well and is much liked for green fodder on the south coast of New South Wales, and should do well on the tableland districts.

Lachlan—A fairly recent variety which has proved excellent for grain in the warm inland districts.

Buddah—An excellent early oat, well regarded in coastal areas.

Tartarian (Side Bearing)—Late. One of the earliest white grained varieties, and good for green fodder, especially on the cold highlands.

Dun—Late. Produces hay and grain of fine quality, largely used for feed by race-horse trainers.

Heavy Black—For green feed in cold climates.

Heavy White—A green fodder oat for moist cool climates.

RYE CORN

Rye Corn is very hardy and is largely used for winter feed, especially where the climate is severe, as it grows better in severe weather than any other cereal. It is excellent for feeding; many experienced farmers preferring

to use it in this way, as they find their stock do best while the Rye Corn is young.

It will stand grazing all the winter, and rapidly grows again after being eaten down. It is also used for mixing with Tares, the Rye Corn serving to hold the Tares off the ground. Rye Corn comes into use very early. Does well on sour land even in warm climates. It is also sown to advantage mixed with Rape. The straw is very valuable for thatching, and some farmers sow the headlands of their hay paddocks with Rye Corn for thatching the stacks. Sow about two bushels to the acre.

Black Winter Rye—The best sort for early winter feed, strongly recommended.

Mammoth White—The most largely used variety, excellent for grazing off and the best sort for horse collar stuffing.

SEED WHEATS

Prime, Heavily Re-cleaned Samples. Grown from Select Stocks.

Wheat is largely used for green fodder and for hay, as well as being the world's most important grain crop. It stands dry conditions better than almost any other grain and is therefore of great value for fodder and for hay, as well as for grain in districts of low rainfall. It will often give good crops in seasons when oats are a failure. The only varieties we stock in quantity are those most used for green feed and hay, but occasionally we have supplies of the newer grain varieties. The advantages of sowing only whole plump grain free of pinched broken seeds, weed seeds and foreign matter, is now proved to be worth many, many times the slight extra cost per acre for Re-cleaned Seed; in unfavourable seasons it may mean the difference between a crop and a failure.

Sow up to 2 bushels per acre together with a dressing of 56 lbs. to 112 lbs. superphosphate per acre, according to location and quality of the land.

LIST OF VARIETIES

Florence (Very Early)—Stools fairly well, growth vigorous and compact, suitable for hay or grain, but especially valuable for green feeding, grazing and soiling in our coastal districts.

Thew (Early)—Has gone right out of favour, being superseded by Florence and similar varieties. We do not now stock it.

Canberra (Early)—A very productive grain wheat and one of the best for late sowing in hot dry districts. Rather slender straw.

Waratah (Early)—One of the newer wheats which is coming into great prominence as a high yielding grain variety. In the various wheat-growing competitions throughout N.S.W. it has been consistently among the leaders.

Hard Federation (Mid-Season)—A favourite variety in the Central Tablelands, Slopes and Northern districts for grain production. Hard grain, stands feeding off. A very good all-round wheat.

Soft Federation (Mid-Season)—Although rather susceptible to rust and to bleaching, this is a very popular mid-season wheat. It is a high yielding grain variety and very drought resistant.

Marshall's No. 3 (Late Mid-Season)—A variety as valuable for hay as it is for grain. It is a good stooler and should be sown very early. Does well throughout the wheat belt.

Vandilla King (Late)—Another sort which can be grown for both hay and grain and does well in any part of the main wheat belt. Stools well.

BARLEYS

Barley is the earliest of the grain crops to mature and in this earliness lies also its great value as a green fodder crop. It is one of the sweetest fodders grown and is relished by all classes of stock. Sow about two bushels per acre.

White Skinless—The earliest variety and very valuable for its quick growth. It affords two cuttings and should be grazed after each; the close feeding seems to cause it to come away with renewed vigour.

Trabut—This variety has not proved as valuable as anticipated. We recommend Cape Barley as being more suitable.

Cape—This is the variety most generally used for green fodder. It grows quickly, stools very well, and gives large bulk of feed; a five-row bearded type.

English or Malting Barley, two-rowed and bearded, is mostly used for grain for malting purposes, but can also be used for green feed.

Pryor—Also a malting variety, similar to above.

SUNDRY FODDER CROPS

FOR AUTUMN PLANTING.

CABBAGE, CATTLE—In cool climates the very large late varieties have a value as cattle feed. Sow in late summer and autumn in seed bed, and afterwards transplant. Sow about half-pound for each acre to be planted out.

CHOU MOELLIER or MARROW KALE—Variety of Kale. Of extremely vigorous growth and yields enormously. The leaves should be cut, not pulled off the stem, and fresh growths are then formed immediately. The stem is also quite free of woody fibre, and is greedily eaten by all classes of stock; it can be chaffed after the crop of leaves is exhausted. Sow in early autumn, two pounds to the acre if drilled, or one pound is sufficient if transplanted; the drills should be two feet apart, allowing twelve to fourteen inches between the plants. It does well even in dry seasons, is a splendid milk producer, and does not taint the milk even if fed alone. Trial packets, 6d.

THOUSAND-HEADED KALE—Few plants will give so great a quantity of feed per acre as Thousand-Headed Kale, and all animals eat it greedily. These should all be sown in a seed bed, and afterwards transplanted in two and a half feet between the plants and three feet between the rows. For the best results sow in summer or early autumn. Trial packets, 6d.

CANARY SEED—Largely grown for bird seed. It may also be used for hay purposes, requires similar culture to wheat; sow 17 to 20 lbs. per acre. We stock Queensland-grown seed, and extra large Morocco-grown seed. Sow in Autumn.

CHICORY—Valuable for its deep rooting action and withstanding droughts. Usually sown in mixtures for second-class land. Sow in autumn.

LINSEED (N.Z. grown)—This is grown either for seed, for oil purposes, or for the fibre for linen making, but requires special conditions, which intending planters should inquire into if putting in large areas.

MUSTARD—For a quick green fodder for fattening lambs, Mustard can be recommended. Sow eight pounds per acre. It is also frequently mixed with rape. It is ready a few weeks after sowing.

SWEDE TURNIPS

Swedes can be grown cheaply and with comparative ease on much of the upland country of N.S.W., not only for stock, but for the vegetable market. For sheep they make an excellent fodder, especially as they become available during the winter and early spring when most needed. Sowing should be made in February, March and April at the rate of two to three pounds per acre in drills about two feet six inches apart. Up to 1 cwt. of superphosphate will cause considerable increase in weight and vigour of crop.

Yates' Champion Purple Top—A standard globe-shaped variety, which gives wonderful returns and is the standard sort for growing for market. Our strains are unexcelled, the crop comes in evenly and the Swedes are well shaped, large, and keep well.

Yates' Monarch—A large tankard shaped variety, with purple top. Heavy yielding and good keeper. Excellent for stock or market growing.



A Heavy Crop of Swedes.

FIELD TURNIPS—Valuable for providing stock feed in the winter and early spring months. They are quick growers, especially the white fleshed sorts. They can be planted when it is too late to sow Swedes, and will yield heavy crops. Sow about two pounds per acre in drills. We stock the leading varieties, both white and yellow fleshed.

MANGOLDS and SUGAR BEET—Wonderful milk producers, and yield immense crops. Sow about September-October; in warm climates an autumn sowing will give a fine winter crop. Plant in well worked clean land, in drills thirty inches apart, to allow horse cultivator to work, and when up, hoe to remove any growth of weeds, and if necessary, thin out to allow the roots to develop. Five pounds per acre of Mangolds and about eight pounds of Sugar Beet are fair sowings. The best varieties are:—
Yates' Mammoth Long Red. **Golden Tankard.**
Yates' Champion Yellow Globe. **Long Yellow.**
Sugar Beet Wanzleben. **Giant Half-Sugar Mangold.**

SALT BUSH—In the drier climates the Salt Bushes make excellent feed, and every effort should be made to preserve them. Unfortunately the better creeping variety (Semi-baccata) is easily eaten out but can be reintroduced by careful seeding. Old Man Saltbush, if sown in selected areas, makes a good drought reserve. They are easily raised from seed or cuttings. One pound should seed an acre.

KURRAJONG (Sterculia Diversifolia)—Many stock owners have to fall back on anything at all edible for the stock during drought, and, as a last resort, the foliage of this tree has considerable value, as well as being very ornamental and enhancing the value of property.

TAGOSASTE (So-called Tree Lucerne)—Suitable for hedges or breakwind and a stand-by against droughts.

SOWING RAPE

YATES' "A.Y." BROADLEAF DWARF ESSEX

Sowing Rape is one of the most profitable stock fodders for fattening. In addition, it is a very useful rotation crop and soil renovator on account of its vigorous deep rooting habit which penetrates subsoils to a considerable depth. It is one of the best annual fodder plants for sheep in Australia, and with the widespread recognition of the value of combining sheep and wheat, it is now becoming very important on the wheat farm, not only for sheep feed, but also as a rotation crop for renovating wheat land.

If paddocks, which are showing signs of exhaustion under wheat, are ploughed and a crop of Rape sown, say early in March, it will give a lot of feed during the winter and following spring. If, during the following summer, the remains of the crop and animal droppings are ploughed in, the land will be very much enriched, and when sown with wheat again, a vastly increased yield will result. The roots of the Rape tend to break up and enliven the soil just below plough depth and this greatly renovates the paddock. Rape is equally good for sheep, pigs or cattle, so long as it is not given in quantity to milking cows, as it is apt to taint the milk.

Sheep put on to Rape fatten very quickly; even old broken-mouthed ewes, that would starve on an ordinary pasture, very soon put on flesh, and are fit for the butcher. They should, however, be sent to market as soon as they are "topped off" as, if put back on the grass they very soon lose condition again. As a means of fattening lambs, especially weaners, for market, there is nothing to equal Rape.

Rape should be eaten off heavily and "spelled"; the plants then soon recover and give a second or third crop almost as good as the first; in fact, if sown in the early autumn it should give several months' feed.

Poultry farmers are finding a small patch of Rape a valuable asset, and for this purpose small successional sowings should be made through the autumn and again in the spring.

Some growers prefer to sow it with Rye Corn, say half-bushel of Rye and two pounds of Rape; others sow it with mustard, using half-a-pound with four pounds of Rape per acre. The inclusion of mustard corrects the occasional tendency of Rape to scour.

We recommend sowing in February, March, or April, after the good autumn rains, but as early as possible after the middle of February. It can also be sown with advantage in early spring, especially in the cooler districts, as it is extremely hardy. The land should be deeply ploughed and well worked, but if sown on stubble land, it would be



Pigs fattening on Rape.

enough on light soils to stir the surface thoroughly with a disc harrow. Sow three pounds per acre in drills, or four to six pounds broadcast. If drilled, so much the better, but the depth of the hoes must be adjusted so as not to sow too deeply. Where a machine is not available it may be sown broadcast by mixing with several times its bulk of dry soil, which will materially help to distribute the seed evenly; or it may be evenly distributed with a Seed Sower. We do not recommend that Rape should be sown on poor hungry land, as it will not succeed; it requires good soil and deep cultivation, and will well repay the labour expended in preparing the land thoroughly. Where manure is employed in growing Rape (and it is a crop which quickly responds to such attention) we would recommend one rich in ammonia—say blood manure or fine bonedust; superphosphate is also used with great success.

As there are several strains of Rape, some very much better and yielding larger crops than others, also as many of the cheaper samples are tainted with wild mustard or yellow weed, we would strongly advise growers to buy our re-cleaned seed, and note that each bag is sealed and branded.

A Profitable Side Line! MARKET GARDEN CROPS

In districts within reasonable distance of the centres of population and with a fair average rainfall, it is often well worth while for the farmer to reserve some of his best land for vegetable production for market.

The essentials for successful market gardening are good soil, good rainfall, or facilities for irrigation, rotation of crops, intelligent use of fertilisers, and regular cultivation.

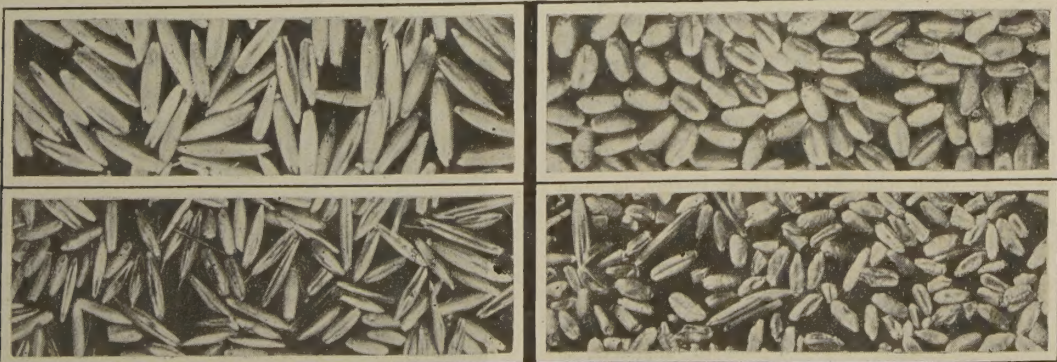
Few crops average out as well as Cauliflower, Cabbage, Pea, Bean, Swede, etc., if grown under suitable conditions. It is wise first to decide what crops are best suited for your conditions, and then to grow them consistently on a well-planned rotation. In this way you will obtain better returns than the grower who is constantly changing over and thereby often meeting a "glut" of the particular line he is growing.

For best varieties, time to plant and for cultural directions, farmers should be guided by local experience and the Information given in Yates' Annual and Yates' Garden Guide (1/- post free). Prices are set out in the Current Price List herewith.

— PRICES —

Prices are as set out in our Current List at time of booking order. The Price List now current is sent you herewith, and later issues will be posted promptly on receipt of enquiry. They are issued about every three to five weeks.

ARTHUR YATES & CO. LTD.
184-186-186A SUSSEX STREET, SYDNEY



Top—Prime, heavily graded, Yates' Re-machined and Tested Seed. Bottom—Weak, shrivelled and broken grains and Weed Seeds, which have all been removed. See also introduction at top of this page.